

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
19 February 2004 (19.02.2004)

PCT

(10) International Publication Number  
**WO 2004/014566 A1**

(51) International Patent Classification<sup>7</sup>: **B05B 11/00**

(21) International Application Number:  
PCT/EP2003/008646

(22) International Filing Date: 4 August 2003 (04.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0218251.7 6 August 2002 (06.08.2002) GB  
0229472.6 18 December 2002 (18.12.2002) GB

(71) Applicant (for all designated States except US): **GLAXO GROUP LIMITED** [GB/GB]; Glaxo Wellcome House, Berkeley Avenue, Greenford, Middlesex UB6 0NN (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **BONNEY, Stanley, George** [GB/GB]; GlaxoSmithKline, Park Road, Ware, Hertfordshire SG12 0DP (GB).

(74) Agent: **RICE, Jason, Neale**; GlaxoSmithKline, Corporate Intellectual Property (CN925.1), 980 Great West Road, Brentford, Middlesex TW8 9GS (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

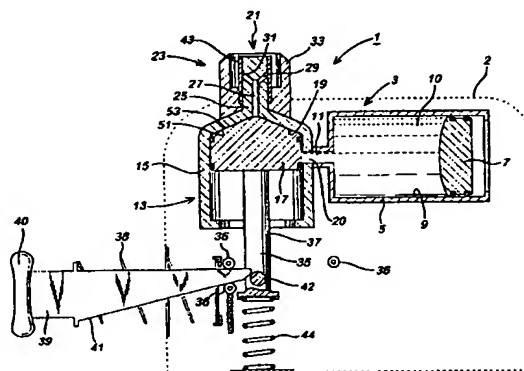
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A DISPENSER



(57) Abstract: A dispenser (1) for dispensing a metered volume of a fluid product has a storage chamber (9) for storing the fluid product in; an outlet orifice (21) through which the fluid product is dispensable from the dispenser; and a dispensing mechanism adapted in use to dispense a metered volume of the fluid product from the storage chamber through the outlet orifice. The dispensing mechanism has a metering chamber (19) which is adapted in use to provide the metered volume of the fluid product for discharge through the outlet orifice. The metering chamber is movable between a first volumetric state, in which the metering chamber has a first volume greater than the metered volume and is in fluid communication with the storage chamber such that, in use, an excess volume of the fluid product consisting of the metered volume and a surplus volume is transferable to the metering chamber from the storage chamber, and a second volumetric state, in which the metering chamber has a second volume less than the first volume and no less than the metered volume and is isolated from the storage chamber such that, in use, the metered volume of the fluid product is contained in the metering chamber ready for dispensing through the outlet orifice. The dispensing mechanism further has a bleed arrangement (11, 20) adapted in use to bleed the surplus volume of the fluid product from the metering chamber as it moves from the first volumetric state to the second volumetric state.

WO 2004/014566 A1

## INTERNATIONAL SEARCH REPORT

Rec'd PCT/PTO 02 FEB 2005

International Application No  
PCT/EP 03/08646

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 B05B11/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 645 509 A (STEP SOC TECH PULVERISATION) 12 October 1990 (1990-10-12) the whole document	1-40, 44
Y	-----	41-43
X	DE 100 17 438 A (KATZ OTTO) 11 October 2001 (2001-10-11) the whole document	1-40, 44
Y	US 6 062 212 A (BARNES PAUL ET AL) 16 May 2000 (2000-05-16) column 4, line 50 -column 5, line 15 figure 3 -----	41-43

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*A\* document member of the same patent family

Date of the actual completion of the international search

25 November 2003

Date of mailing of the international search report

04/12/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Barré, V

Best Available Copy

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/08646

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2645509	A	12-10-1990	FR 2645509 A1	12-10-1990
			AT 80850 T	15-10-1992
			CA 2005928 A1	20-06-1990
			DE 68902989 D1	29-10-1992
			DE 68902989 T2	15-04-1993
			EP 0378935 A1	25-07-1990
			JP 2246976 A	02-10-1990
			JP 2936485 B2	23-08-1999
			US 5024355 A	18-06-1991
DE 10017438	A	11-10-2001	DE 10017438 A1	11-10-2001
US 6062212	A	16-05-2000	GB 2272389 A	18-05-1994
			AU 670342 B2	11-07-1996
			AU 5341894 A	24-05-1994
			CA 2144752 A1	11-05-1994
			CN 1101004 A , B	05-04-1995
			DE 69316999 D1	19-03-1998
			DE 69316999 T2	20-08-1998
			EP 0682570 A1	22-11-1995
			ES 2113000 T3	16-04-1998
			FI 951490 A	29-03-1995
			WO 9409912 A1	11-05-1994
			JP 3241729 B2	25-12-2001
			JP 8502689 T	26-03-1996
			KR 264246 B1	16-08-2000